Title of Proposal - Intersection of Nelson Bay Road and Seaside Boulevard - Fern Bay

Section 1 - Summary of your proposed action

Provide a summary of your proposed action, including any consultations undertaken.

1.1 Project Industry Type

Residential Development

1.2 Provide a detailed description of the proposed action, including all proposed activities.

In 2010, the Minister for Planning approved the construction of 370 residential lots, 38 super lots, 2 commercial lots and 1 community lot at Fern Bay, NSW. These lots are within the residential estate known as Seaside Village, Fern Bay. The planning approval also included associated road works, including a new intersection at Seaside Boulevard and Nelson Bay Road, Fern Bay (which provides a northern access point to Seaside Village). This new intersection at Seaside Boulevard/Nelson Bay Road is to be constructed on a road under the control of the NSW Roads and Maritime Services (RMS). This referral has been instigated as part of that separate approval process.

The secondary road access requires construction of an intersection of Nelson Bay Road and Seaside Boulevard, approximately 12.5 to 13.5 km north of Newcastle and 2.167 to 3.152 km north of the Nelson Bay Road Divided Carriageway, which includes the following:

• Left turn deceleration lane on Nelson Bay Road for entry into Seaside Boulevard and acceleration lane on Nelson Bay Road (for egress from Seaside Boulevard)
• The deceleration lane is approximately 310m and the acceleration lane is approximately 670m in length
• Provision for on road cyclists
• Minor extension of Seaside Boulevard through to Nelson Bay Road
• Concrete median to prevent right turn in and out movements
• Relevant ancillary items (e.g. lighting, signage, line marking)
• Drainage works – Approximately 80m of 375mm Reinforced Concrete Pipe drainage works are proposed to drain the pavement areas around the concrete medians, 78m of ACO Traffik Drain 200 capturing existing Nelson Bay Road pavement runoff, and the extension of 3 existing culverts to extend beyond the proposed works and batters
• Approximately 800m of wire rope safety barriers are being provided to the south east of the new deceleration and acceleration lanes
• Clearing of vegetation, cut and fill batters required to implement the works

Refer to attachment "NE160043_FERN BAY_DD_RevC_2019-03-08.pdf" - Port Stephens Council, MR108 Nelson Bay Road, Intersection of Nelson Bay Road and Seaside Boulevard, 2.167km to 3.152km North of Nelson Bay Road Divided Carriageway, Road Works, Detailed Design

1.3 What is the extent and location of your proposed action? Use the polygon tool on the map below to mark the location of your proposed action.

Area	Point	Latitude	Longitude
Fern Bay Intersection	1	-32.853632897357	151.81423370597
Fern Bay Intersection	2	-32.853634467768	151.81423907039
Fern Bay Intersection	3	-32.853632897357	151.81424443481
Fern Bay Intersection	4	-32.856066335371	151.8079036927
Fern Bay Intersection	5	-32.855543602464	151.8076354718
Fern Bay Intersection	6	-32.851623007484	151.81714122055
Fern Bay Intersection	7	-32.852289971503	151.81758110282
Fern Bay Intersection	8	-32.853632897357	151.81423370597

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland).

The proposed action will take place approximately 12.5 to 13.5 kilometres north of Newcastle, and approximately 200 meters northwest of the Fern Bay Seaside Village. The proposed acction will occur directly adjacent to the existing Nelson Bay Road, 2.167 to 3.152 km north of the Nelson Bay Road Divided Carriageway, and the existing Seaside Boulevard.

The proposed action will occur entirely within the road verge. Seaside Boulevard will be extended up to 30m to join Nelson Bay Road, while the works within the Nelson Bay Road road reserve will extend between 10-20m from the existing pavement.

The immiadiate road verge environment (from 1.5 to 5 meters in width) consists of disturbed and managed vegetation. Native vegetation on either side of the existing road consists of Coastal Sand Apple - Blackbutt Forest, Swamp Mahogany - Paperbark Forest, and Swamp Oak Sedge Forest. The surrounding landscape consists of undulating vegetated sand hills and low lying swampy depressions which lie inland from the extensive dune systems of Stockton Beach. Soils are predominantly fine grained sands, with some organic topsoil, swamp deposit materials, and small areas of peat. In a broader context, the area lies inland from the hind dunes of the extensive dune system of Stockton Beach along the southern Stockton Bight in the coastal Port Stephens region. The area lies to the southeast of Fullerton Cove, which is part of the Hunter River estuary. The wider landscape therefore approximates a peninsular landform, bordered to the northwest, west, and south by the Hunter River, and to the east by the Pacific Ocean.

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

Development footprint up to 2.28 hectares

1.7 Is the proposed action a street address or lot?

Lot

1.7.2 Describe the lot number and title. Lot 21 DP 270466; Lot 46 DP 280008; Nelson Bay Road road reserve

1.8 Primary Jurisdiction.

New South Wales

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

No

1.10 Is the proposed action subject to local government planning approval?

No

1.11 Provide an estimated start and estimated end date for the proposed action.

Start date 05/2019

End date 05/2020

1.12 Provide details of the context, planning framework and State and/or Local government requirements.

The first few stages of Seaside Village at Fern Bay were approved by the Land and Environment Court (LEC) in September 1997. This approval was for 208 residential lots. Subsequently, in August 2006 the NSW Minister for Planning adopted a masterplan for the site under the then State Environmental Planning Policy No. 71 – Coastal Protection (SEPP 71). This masterplan provided for 947 residential lots and associated infrastructure and services. In June 2010 the Minister for Planning then approved a 411 lot residential subdivision across the previous masterplanned area (reference MP06_0250). This approval included the approval for associated infrastructure and services, and open space. The approval was determined under the then Part 3A of the Environmental Planning and Assessment Act 1979 (EP&A Act). The Part 3A development approval also included the construction of a new intersection at Seaside Boulevard and Nelson Bay Road.

Under the Part 3A consent an approval under Section 138 of the NSW Roads Act 1993 is also required. This entails the RMS approving the design for the intersection and appropriate

contracts are in place between the developer and the RMS. The RMS has approved the design and a Works Authorisation Deed (WAD) has been signed by the RMS and the developer. The WAD/Section 138 process also includes an assessment of environmental impact, which in this case was assessed as part of the Part 3A approval.

On this basis approvals are in place with the relevant authorities at the state level.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders.

The original approval by the LEC in 1997 included a public exhibition of the proposal. The environmental impact statement (EIS) undertaken for the Part 3A approval also included a public exhibition of the proposal. The NSW Department of Planning identified that the EIS was exhibited between 8 May 2009 and 9 June 2009. There has been eleven (11) modifications lodged to the original Part 3A approval (although not all have progressed due to mitigating circumstances). All these modifications have also been through a public exhibition process.

The Part 3A process and subsequent modifications have also included consultations with relevant NSW state agencies.

The EIS for the Part 3A approval was prepared by Environmental Resources Management (ERM). The EIS contained an Aboriginal archaeological assessment which involved consultations with local Indigenous groups and individuals. As part of this process a management plan for the site was prepared in conjunction with local Indigenous representatives (also refer to condition B23 of the consent).

It should be noted that as part of the consent (refer to Schedule 3 – Statement of Commitments) local Indigenous representatives are on-site during construction works. This will be the case for the proposed works.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project.

The following studies were undertaken as part of the original Project Approval in 2010:

Environmental Assessment Report, prepared by ERM, Feb 2009;Fern Bay Seaside Village Project Application – Submissions Report, ERM, Dec 2009;Fern Bay Seaside Village Project Application – Further Response to Submissions, Apr 2010.

Specifically, the Environmental Assessment Report (EIS) prepared by ERM in February 2009 included a number of annexes of relevance including:

Annex D - Fern Bay Seaside Village Offset Package: Worimi Regional Park Vegetation Management Plan February 2009Annex H - Fern Bay Estate Assessment of Matters of National Environmental Significance April 2005Annex I – Aboriginal Heritage Assessment, Apr 2005 and Addendum Report, May 2008Annex P - Fern Bay Seaside Village Ecology Assessment Report February 2009Annex Q - Fern Bay Estate Response to the Port Stephens Comprehensive Koala Plan of Management April 2005Annex R - Fern Bay Estate Species Impact Statement April 2005

In addition ERM prepared *Submission Report Additional Ecological Information*, in Dec 2009.

MJD Environmental was engaged by the developer – Fern Bay No. 1 Pty Ltd, to undertake supplementary ecological studies for the proposed Seaside Boulevard/Nelson Bay Road intersection upgrade. Given previous issues surrounding ecological matters and clearing on the site the developer specifically requested supplementary work for the proposed intersection.

NSW Biodiversity Reforms

The MJD assessment was prepared during the transitional period prior to the commencement of the NSW Biodiversity Conservation Act. At the time MJD prepared the supplementary work with due regard to the transitional arrangements set out under the Biodiversity Conservation (Savings and Transitional) Regulation 2017 (Transitional Regulations). Under Part 7 clause 27 of the Transitional Regulations, the proposal was categorised as a pending or interim planning application pursuant to subclause (e). The ecological work at the time was within the stipulated transition period from commencement of the NSW Biodiversity Reforms (25th August 2017), being before 24th November 2018. Thus, the NSW Threatened Species Conservation (TSC) Act was still in effect. The advice recognises the relevant requirements of the Environmental Planning and Assessment Act 1979 (EP&A Act) as amended by the Environmental Planning and Assessment Amendment Act 1997 (EP&AA Act). Assessment is also made with regard to those threatened entities listed federally under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

The supplementary ecological field assessment found the proposed area of road works (the subject of this referral) included:

1.12ha of Swamp Mahogany – Paperbark Forest commensurate with the TSC ACT listed Endangered Ecological Community Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South-East Corner Bioregion;

0.06ha of Swamp Oak Sedge Forest is commensurate with the TSC ACT listed Endangered Ecological Community Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions;

0.58ha of Coastal Sand Apple – Blackbutt Forest;

One threatened forest owl species was recorded in the study area. The Powerful Owl (Ninox connivens) was observed within the study area. The Powerful Owl is listed as Vulnerable under

the TSC Act 1995;

The Squirrel Glider (Petaurus norfolcensis) and Common Planigale (Planigale maculata) both listed TSC Act Vulnerable were recorded on motion sensing cameras installed adjacent to the study area;

The Grey-headed Flying-fox (Pteropus poliocephalus) was recorded overflying the study area on several nights;

One threatened diurnal raptor species was recorded adjacent to and overflying the study area, being the White-bellied Sea-eagle (Haliaeetus leucogaster), which is listed as Vulnerable under the TSC Act;

Three threatened microchiropteran bat species were recorded in the study area being the Little Bentwing-bat (Miniopterus australis), Eastern Bentwing-bat (Miniopterus australis) and Yellow-bellied Sheath-tailed Bat (Saccolaimus flaviventris). All are listed as Vulnerable under the TSC Act; and

Assessment under the Port Stephens Council Comprehensive Koala Plan of Management (as replacement to SEPP 44) found that ‘Preferred Koala Habitat,’ ‘Supplementary Koala Habitat,’ ‘Habitat Buffer over Supplementary Koala Habitat,’ and ‘Habitat Linking Area over Supplementary Koala Habitat’ are found within the study area.

The proposal will result in direct and indirect impacts, including:

Removal of 1.12ha of Swamp Mahogany – Paperbark Forest;

Removal of 0.06ha of Swamp Oak Sedge Forest;

Removal of 0.45ha of Coastal Sand Apple – Blackbutt Forest;

Removal of 0.02ha Cleared Easement;

Removal of 0.32ha of No MU Degraded Road Verge and;

Removal of up to three hollow-bearing trees, however most likely only a single hollow bearing tree is expected to be removed;

Habitat fragmentation increased to a limited extent beyond existing levels of fragmentation caused by Nelson Bay Road and Seaside Boulevarde; and

Potential increased edge effects, increased risk of weeds establishing, increased risk of vehicle strike, and changes to water regimes and runoff quality.

The Port Stephens Council Comprehensive Koala Plan of Management supersedes SEPP44 in the Port Stephens Local Government Area. Assessment under the CKPoM found that Preferred Koala Habitat, Habitat Buffers, and Habitat Linking Areas occur on site. Mitigation measures have been recommended where impacts cannot be avoided. The implementation of these measures should reduce adverse impacts on ecological values of the site.

An ecological impact assessment and Seven-Part Test considered whether the removal of vegetation on site totalling 1.63ha of native vegetation, would constitute a significant impact on known TSC Act listed threatened species, populations, and ecological communities from the locality such that a local extinction may occur.

The assessment concluded that the proposal is unlikely to have a significant impact on the TSC Act listed threatened entities assessed.

An impact assessment of Matters of National Environmental Significance listed under the EPBC Act utilised both "Matters of National Environmental Significance: Significant impact guidelines 1.1" and "EPBC Act referral guidelines for the vulnerable koala" to consider whether the proposal is likely to have a significant impact on MNES. The assessment concluded that the proposal is not likely to have a significant impact on the MNES assessed.

1.15 Is this action part of a staged development (or a component of a larger project)?

Yes

1.15.1 Provide information about the larger action and details of any interdependency between the stages/components and the larger action.

The proposed action (new intersection) was included as part of the broader Seaside Village approval in 2010. The larger residential subdivision works relating to environmental impacts (vegetation clearing) have been completed.

The proposed action is required as part of the original consent in 2010, specifically Conditions of Approval A2 Staging and B5 Construction of connection to Nelson Bay Road (at Stage 14). A recent modification (modification no. 11) has sought to link the intersection works to a future stage of the Seaside Village estate. Notwithstanding the determination of modification 11 the intersection is still required as it is conditioned in the current consent (refer to condition A2 and B5).

1.16 Is the proposed action related to other actions or proposals in the region?

No

Section 2 - Matters of National Environmental Significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest. Consideration of likely impacts should include both direct and indirect impacts.

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The following resources can assist you in your assessment of likely impacts:

• Profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;

• Significant Impact Guidelines 1.1 – Matters of National Environmental Significance;

• Significant Impact Guideline 1.2 – Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies.

2.1 Is the proposed action likely to have ANY direct or indirect impact on the values of any World Heritage properties?

No

2.2 Is the proposed action likely to have ANY direct or indirect impact on the values of any National Heritage places?

No

2.3 Is the proposed action likely to have ANY direct or indirect impact on the ecological character of a Ramsar wetland?

No

2.4 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

Yes

2.4.1 Impact table

Species	Impact
Koala (Phascolarctos cinereus)	Habitat loss (clearing): The proposal will clear 1.12 hectares of Swamp Mahogany - Paperbark Forest which contains one known koala food

Species	Impact
	tree, Swamp Mahogany. Habitat fragmentation: The proposal will result in a small increase in the level of fragmentation of this species habitat in the locality via widening Nelson Bay Road. Nelson Bay Road and Seaside Boulevard create a high level of existing fragmentation locally. Nelson Bay Road is a main arterial link road with high traffic volume and high vehicle speeds (100 km/h speed limit). Habitat degradation: The proposal has potential to increase the risk of introduction of Phytophthora cinnamomi and weed species to the study area via ground disturbance and construction activity combined with machinery bringing seeds and spores into the area. Vehicle strike: The study area currently has a high risk of vehicle strike on Nelson Bay Road, which is a high traffic main arterial link road with a speed limit of 100 km/h. The proposed intersection has potential to raise the risk of koala mortality due to the widening of Nelson Bay Road for acceleration and deceleration lanes, and the introduction of traffic to the previously approved and partially constructed Seaside Boulevard. Evidence of one or more koalas within 2km of the edge of the impact area within the last 5 years. OEH Bionet returns the following records within 2km: 14-Dec-2015 NE of site on Nelson Bay Rd 20-Jul-2015 W of site on Seaside Boulevard, 300m SE of roundabout
New Holland Mouse (Pseudomys novaehollandiae)	Due to the extent of native vegetation clearing (1.63ha), the local population is likely to experience a small reduction in habitat where local individuals may be resident, which due to the variation in this species abundance in response to stochastic events (preferring vegetation of a early to mid-succession age after fire or disturbance), may not be permanently occupied. The proposal will result in a small increase in level of fragmentation of this species habitat in the locality via widening Nelson Bay Road. Nelson Bay Road (a high traffic main road) and Seaside Boulevard create a high level of existing fragmentation locally. This species has been recorded recently (2013) within 1 km of the study area in the Worimi Regional Park, and there are many records within the contiguous vegetation of the southern

Species	Impact
	Stockton Bight (NSW Bionet).
Swift Parrot (Lathamus discolor)	Swift Parrots seldom occur in the Port Stephens area, however flowering eucalypts which could provide forage during winter migrations occur on site and in the wider region. Swamp Mahogany and Blackbutt within the study area could provide foraging habitat during the Swift Parrot's non-breeding dispersal. Therefore, the site could be utilised by this species during the winter months on an intermittent basis, coinciding with major flowering events in the area. The small area of vegetation clearing will reduce the area of potential intermittently used foraging habitat for these species. However, extensive areas of similar foraging habitat will remain in the surrounding area, including forests within the conservation areas of the adjacent Fern Bay Seaside Village.
Earp's Gum (Eucalyptus parramattensis subsp. decadens)	The study area contains marginal habitat for this species within Coastal Sand Apple - Blackbutt Forest, of which 0.45 hectares will be removed. This species has been recorded within 10 km of the study area (NSW Bionet), however targeted threatened flora searches were undertaken within the study area, covering the entire extent of potential habitat, and failed to detect this conspicuous species.
Newcastle Doubletail (Diuris praecox)	The Rough Doubletail is a terrestrial orchid that is known to occur on hills and slopes near coastal districts in open forest with a grassy to fairly dense understorey. Therefore, the proposal will result in the removal of 0.45 hectares of low condition (roadside) potential open forest habitat (Coastal Sand Apple - Blackbutt Forest). This species has been recorded 800 meters east of the study area during previous surveys for the adjacent Fern Bay Seaside Village. It was found within Coastal Sand Apple - Blackbutt Forest.
Leafless Tongue-orchid (Cryptostylis hunteriana)	The habitat preferences of this species are not clear as of this writing. It is found in a range of vegetation communities including swamp heath, woodland, and open forest. Therefore, the proposal will result in the removal of 0.45 hectares of low condition (roadside) potential open forest habitat (Coastal Sand Apple - Blackbutt Forest). This species has not been recorded within 10 km of the study area (NSW

Species	Impact
	Bionet)
Regent Honeyeater (Anthochaera phrygia)	Regent Honeyeaters seldom occur in the Port Stephens area, however flowering eucalypts which could provide forage during irregular coastal dispersive events occur on site and in the wider region. Regent Honeyeaters have been found foraging in coastal Swamp Mahogany forests such as those found on site during winter migrations. Therefore, the site could be utilised by these species on an intermittent basis, particularly as a winter coastal drought refuge when food resources further inland are not available. The small area of vegetation clearing will reduce the area of potential intermittently used foraging habitat for this species. However, extensive areas of similar foraging habitat will remain in the surrounding area, including forests within the conservation areas of the adjacent Fern Bay Seaside Village.
Spotted-tailed Quoll (Dasyurus maculatus)	The Spotted-tailed Quoll is known to inhabit a range of habitats in rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. The proposal will result in the removal of a small linear patch of remnant roadside vegetation which may provide potential denning and foraging habitat. The study area lies within a larger tract of contiguous native forest, which has connectivity to large tracts of state forest and national park land in the region, including areas where this species is known to occur (Tomaree National Park), although there are no records of this species within 10 km of the study area (NSW Bionet). It is considered that the area of clearing that represents a reduction in potential area of denning and foraging habitat is unlikely to be significant within the context of this species home range (F=750ha and M=3500ha), and given the low likelihood of a local population occurring in the study area. The proposal will result in a small increase in level of fragmentation of this species habitat in the locality via widening Nelson Bay Road. Nelson Bay Road (a high traffic main road) and Seaside Boulevard create a high level of existing fragmentation locally.

Species	Impact
Grey-headed Flying-fox (Pteropus poliocephalus)	The Grey-headed Flying Fox was observed within the study area, with large numbers seen overflying during every call playback and spotlighting session. No signs of past or current roost camps were observed (nearest being Fullerton Cove), however the study area does present some foraging potential for Grey-headed Flying Foxes occurring in the locality. The study area provides important winter blossom forage for this flying fox species in the form of Swamp Mahogany. Other Eucalypt and Banksia species also provide nectar, and Cabbage Tree Palms provide fruits. The proposal will clear a linear strip of foraging habitat. Similar vegetation will be retained in the study area and furthermore is part of a large area of contiguous bushland surrounding the study area. It is considered that the area of clearing represents a small reduction in potential area of foraging habitat for this species.
Green and Golden Bell Frog (Litoria aurea)	This species was not recorded within the study area during surveys and few (7) have been recorded within a 10 km (NSW Bionet) search of the study area. Potential habitat for this species occurs within seasonally inundated depressions in the swamp forest throughout the study area, however preferred open unshaded ephemeral or permanent wetland habitat is not present. The swamp forest present is not likely to support a viable population of this species as there is no standing open water available which is preferred for breeding.
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland	Removal of 0.06 hectares of this community. Total patch size of the occurrence of this community within the study area (in the range of direct and indirect impacts) is 0.06 hectares. Based on criteria within Table 1 Section 3.2 of "Conservation advice (incorporating listing advice) for the Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community" the occurrence of this community is not commensurate with the listed Vulnerable community as it does not meet the minimum patch size criteria.

2.4.2 Do you consider this impact to be significant?

No

2.5 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed migratory species, or their habitat?

Yes

2.5.1 Impact table

Species	Impact
White-bellied Sea-Eagle (Haliaeetus leucogaster)	The White-bellied Sea Eagle is frequently observed in the Port Stephens area in close proximity to the site. As this species occurs in significant numbers in the locality, the site has potential to be utilised for nesting. However, habitat surveys on site failed to locate the type of large emergent trees or stags that would typically be used for nesting of this large bird of prey. This species could potentially roost on dusk within trees in the study area. Two adult birds, likely a pair, were observed coming in to roost on dusk adjacent to the study area in a large emergent Blackbutt with exposed, defoliated upper canopy branches.
Eastern Osprey (Pandion cristatus)	Eastern Ospreys have been recorded in the locality. Due to the site's proximity to high quality foraging habitat in coastal waters, Eastern Ospreys have the potential to overfly the site or roost in some of the larger emergent trees or stags. However, habitat surveys on site failed to locate the type of large emergent trees or stags that would typically be used for nesting of this large bird of prey.
Black-faced Monarch (Monarcha melanopsis)	Native vegetation clearing (approx. 1.63ha in total) will remove potential foraging habitat for this species.
Spectacled Monarch (Monarcha trivirgatus)	Native vegetation clearing (approx. 1.63ha in total) will remove potential foraging habitat for this species.
Satin Flycatcher (Myiagra cyanoleuca)	Native vegetation clearing (approx. 1.63ha in total) will remove potential foraging habitat for this species.
Rufous Fantail (Rhipidura rufifrons)	Native vegetation clearing (approx. 1.63ha in total) will remove potential foraging habitat for this species.

2.5.2 Do you consider this impact to be significant?

No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

No

2.7 Is the proposed action to be taken on or near Commonwealth land?

No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

No

2.9 Is the proposed action likely to have ANY direct or indirect impact on a water resource related to coal/gas/mining?

No

2.10 Is the proposed action a nuclear action?

No

2.11 Is the proposed action to be taken by the Commonwealth agency?

No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage Place Overseas?

No

2.13 Is the proposed action likely to have ANY direct or indirect impact on any part of the environment in the Commonwealth marine area?

No

Section 3 - Description of the project area

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed in Section 2).

3.1 Describe the flora and fauna relevant to the project area.

Flora

Vegetation Mapping & Delineation

A review of regional vegetation mapping (LHCCREMS 2000) identified two vegetation communities occurring within the area of works (study area), being:

- MU 33 Coastal Sand Apple-Blackbutt Forest; and

- MU 40 Swamp Oak Rushland Forest.

Field surveys undertaken for the MJD Environmental supplementary ecological assessment have confirmed the presence of four vegetation communities.

The vegetation communities delineated within the study area are:

- MU 33 Coastal Sand Apple-Blackbutt Forest;

- MU 37 Swamp Mahogany – Paperbark Forest;

- MU 41 Swamp Oak Sedge Forest; and

- No MU Degraded Road Verge.

MU 37 Swamp Mahogany – Paperbark Forest is commensurate with the TSC ACT listed Endangered Ecological Community Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions.

MU 41 Swamp Oak Sedge Forest is commensurate with the TSC ACT listed Endangered Ecological Community Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions.

MU 33 – Coastal Sand Apple- Blackbutt Forest (0.58 hectares)

The Coastal Sands Apple-Blackbutt Forest is found on higher elevation sand hills flanking the surrounding swamp forests within the study area. This community has a limited representation, with a previously disturbed patch of vegetation observed in the south east and centrally within the study area.

The vegetation community is in moderate condition, with road side vegetation in both areas, evidences of site disturbance from past road widening and batter construction works (western side of vegetation patch). The native canopy species present within the vegetation is relatively uniform, with the primary canopy species including Angophora costata (Smooth-bark Apple), Eucalyptus pilularis (Blackbutt) and scattered mature Banksia serrata (Old Man Banksia). Canopy closer to the road side edge is generally young in age and of a single age cohort. Canopy species in the remaining area are of varying age cohorts. The mid-storey varies in density with areas of native mid-storey such as Acacia longifolia, Monotoca elliptica, Duboisia myoporoides and Glochidion ferdinandi.

The shrub layer is predominantly scattered native species such as Breynia oblongifolia (Coffee Bush) Clerodendrum tomentosa and Platysace lanceolata. The high threat weed Lantana camara (Lantana) is present with dense patches scattered throughout.

The groundcover is a mix of scattered grassy, herbaceous and subshrub species that include Hibbertia linearis, Dianella cerulea var. producta, Lomandra longifolia, Pteridium esculentum, Entolasia marginata and Themeda triandra.

The vegetation was observed to have a low presence of logs (>10cm), and there is a small number of large old trees (up to 3 hollow bearing trees in the range of direct and indirect impacts) that were observed to have hollows of varying sizes present.

Canopy Layer:

To 25m with a 30- 40% Projected Foliage Cover (PFC). Dominant species Angophora costata, Eucalyptus pilularis and Banksia serrata.

Mid storey Layer:

To 10m with a 20- 25% Projected Foliage Cover (PFC). Dominant species Breynia oblongifolia, Glochidion ferdinandi var. pubens, Monotoca elliptica, Duboisia myoporoides and Acacia longifolia subsp. longifolia. Weed species include Lantana camara and Chrysanthemoides monilifera.

Ground Cover:

To 1m with a PFC. of 70%. The groundcover and herbaceous layer was characterised by a predominantly of the native fern Pteridium esculentum with scattered Lomandra longifolia, Imperata cylindrica, hibbertia linearis, Entolasia marginata, Themeda triandra and Dianella cerulea var. producta.

MU 37 – Swamp Mahogany - Paperbark Forest (1.12 hectares)

This vegetation community is found in low lying areas and is the dominant vegetation type observed within the study area.

The canopy of this community predominantly consists of Melaleuca quinquenervia, with scattered occurrences of Casuarina glauca, Eucalyptus robusta, Melaleuca stypheloides and Livistona australis.

The midstorey vegetation layer varies and is dependent on the elevation within the study areas. Areas low lying and that are persistently damp have a low density midstorey with species such as Melaleuca linariifolia and Glochidion ferdinandi subsp. pubens. In areas of slightly higher ground where water does not regularly sit or inundate, mesic species are common, creating a moderately dense cover of mid-storey species. In addition to the already mentioned species the following were observed Acmena smithii, Livistona australis, Homalanthus populneus and Myrsine variabilis.

The groundcover is dense with native sedge species primarily Gahnia clarkei (Saw Sedge), Phragmites australis, and ground ferns such as Blechnum indicum and Hypolepis muelleri.

The Swamp forest is generally in moderate to good condition, with the exception of the road verge edge where a thicket of Lantana has established creating a wall between the vegetation and exotic grasses maintained at the edge of the road.

The section of Swamp forest located between the proposed road entrance and the first parcel of Blackbutt forest to the south, has a significant cover of Alternanthera philoxeroides (Alligator Weed), that is spread throughout the dense native groundlayer.

The vegetation has a low presence of logs (>10cm) that where observed on the ground, and no hollow bearing trees were observed.

MU 37 Swamp Mahogany – Paperbark Forest is commensurate with the TSC ACT listed Endangered Ecological Community Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions.

Canopy Layer:

Between 10 -20m with a 50- 60% Projected Foliage Cover (PFC). Dominant species Eucalyptus robusta, Casuarina glauca, Livistona australis and Melaleuca quinquenervia .

Sub-Canopy Layer:

To 10m with a 40- 50% Projected Foliage Cover (PFC). Dominant species Melaleuca linariifolia, M. stypheloides.

Mid storey Layer:

To 5m with a 10- 20% PFC. Generally scattered with small pockets of small trees and dense edges where adjacent to regrowth open forest, some areas absent of midstorey. Species recorded included Livistona australis, Glochidion ferdinandi, Homalanthus populneus and Acmena smithii.

Ground Cover:

To 1m with an 80 - 90% PFC. The groundcover and herbaceous layer was characterised by a predominantly native sedge cover with scattered grassy and herb layer. The main species where Gahnia clarkei, Cyclosorus interruptus, Blechnum indicum, Alocasia brisbanensis, Hypolepis muelleri and Phragmites australis Scattered species included grassy and herb

species Viola hederacea, Entolasia marginata, Oplismenus imbecilis, and Persicaria strigosa.

Exotic Species:

Exotic species observed throughout the site include: Alternanthera philoxeroides (Alligator Weed) and Lantana camara (Lantana).

MU 41 – Swamp Oak Sedge Forest (0.06 hectares)

This vegetation community is represented in a very narrow parcel of vegetation on low lying land. This area is structurally similar to MU 33 with the distinct differences *Casuarina glauca* observed to be dominant in the canopy. Although there is only a small representation of the community and it maybe the result of previous disturbance associated with road construction, the vegetation community was sperate for the propose of the project.

The canopy of this community predominantly consists of *Casuarina glauca* in which it is the dominate canopy tree. There is a representation of *Melaleuca quinquenervia* scattered throughout, but at no time was this species observed to be the dominant species in these small areas. The areas in which this vegetation type was observed, it appeared to be the result of past disturbances in the area. this was evident by the lack of larger trees compare to vegetation adjacent to the community and the lower density of canopy species.

The midstorey vegetation layer was limited with only scattered occurrences of individuals. Species observed was limited to *Glochidion ferdinandi* subsp. *pubens* and juvenile or semi mature *Casuarina glauca* and *Melaleuca quinquenervia.*

The groundcover is dense with native sedge, grass and rush species primarily *Gahnia clarkei* (Saw Sedge), *Phragmites australis*, *Typha orientalis* and ground ferns such as *Blechnum indicum* and *Hypolepis muelleri*.

The Swamp Oak forest is in moderate condition, with the exception of the road verge edge where a thicket of Lantana has established creating a wall between the vegetation and exotic grasses maintained at the edge of the road.

MU 41 Swamp Oak Sedge Forest is commensurate with the TSC ACT listed Endangered Ecological Community *Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions.*

Canopy Layer:

Between 10 -50m with a 40- 50% Projected Foliage Cover (PFC). Dominant species Casuarina glauca and Melaleuca quinquenervia.

Mid storey Layer:

To 8m with a 10- 20% PFC. Generally scattered with small pockets of small trees and dense edges where adjacent to regrowth open forest, some areas absent of midstorey. Species recorded included Casuarina glauca and Melaleuca quinquenervia, Glochidion ferdinandi var. pubens and Homalanthus populneus Exotic species include Lantana camara.

Ground Cover:

To 1m with an 80 - 90% PFC. The groundcover and herbaceous layer was characterised by a predominantly native sedge cover with scattered grassy and herb layer. The main species where Gahnia clarkei, Blechnum indicum, Hypolepis muelleri, Typha orientalis and Phragmites australis. Scattered grassy and herbaceous species included grassy and herb species Viola hederacea, Entolasia marginata, and Persicaria strigosa.

Exotic Species:

Exotic species observed throughout the site include: Alternanthera philoxeroides (Alligator Weed) and Lantana camara (Lantana).

No Unit – disturbed road verge (0.32 hectares)

The vegetation is primarily exotic weed cover with the occasional native species persisting. Weed species present include *Eragrostis curvula* (African Love Grass), *Melinus repens* (Red Natal Grass), *Cenchrus clandestinus* (Kikuyu), *Megathyrus maximus* (Green Panic), *Lantana camara* and *Conyza* sp.

Native species persisting in this area are limited to species commonly found in disturbed areas such as *Pteridium esculentum, Imperata cylindrica, Bothriochloa macra* and *Kennedia rubicunda.*

The road verge ranges from 1.5m to 5m in width.

Significant Flora Survey

A total of 81 flora species have been positively identified within the study area during current surveys.

No significant flora listed under the TSC Act or EPBC Act were identified within the Study Area during the ecological assessment. Targeted threatened species surveys were undertaken for listed species in which potential habitat is present on site and that were known to be detectible during the survey period. Of the 17 listed threatened species (TSC Act & EPBC Act) returned during the 10km search of the locality, the following flora species were identified to have potential habitat on site and were detectable during the survey period: Eucalyptus camfieldii, E. parramattensis subsp. decadens, and Maundia triglochinoides.

<u>Detectable Species</u>

The targeted surveys undertaken for *Eucalyptus camfieldii, E. parramattensis S*ubsp. *decadens,* and *Maundia triglochinoides*, focused on areas of damp sclerophyll forest located within the study area. No individuals where identified during these surveys. The areas nominated for these surveys where primarily the transitional zones between the Swamp Mahogany Paperbark Forest and the Coastal Sands Apple-Blackbutt Forest. Vegetation condition in these areas was generally moderate to high quality with little evidence of previous site disturbance with the exception of areas where the vegetation boards the road verge and disturbed vegetation community.

Cryptic Species

There is a single threatened species listed in the locality that was identified to have potential habitat on site being *Diuris praecox,* however this species was not formally surveyed due to the cryptic nature of the species, and the current survey carried out for the proposal was outside the optimal survey period for this species. The potential habitat condition (within Coastal Sands Apple-Blackbutt Forest) is generally low to moderate and the obvious disturbance (construction of road batter) that has occurred in these areas would restrict this species to persist.

Previous surveys carried out for the Fern Bay Seaside Village noted two individuals approximately 800m east of the current study area. The current study area and lands between the known location and current study area where formally surveyed as part of the larger residential sub-division by Environmental Resource Management Pty Limited in July 2002 and on 25 August 2004 using random meander transect surveys. It is on this basis that no further surveys would be recommended to target this species.

Fauna

The following provides the fauna results from the site survey. A total of 50 fauna species were recorded during the survey period.

Mammals

Arboreal Mammals

Five arboreal mammal species were recorded during remote camera and nocturnal surveys across the study area. Wildlife camera recordings were used to positively identify the presence of Feathertail Gliders (*Acrobates pygmaeus*), Squirrel Gliders (*Petaurus norfolcensis*), Common Brushtail Possum (*Trichosurus vulpecula*), and Common Ringtail Possum (*Pseudocheirus peregrinus*). During spotlight surveys, only Common Brushtail Possums were observed. Nocturnal Call Playback surveys did not elicit response from any of the targeted arboreal mammal species; however Grey-headed Flying-foxes (*Pteropus poliocephalus*) were observed overflying during every call playback session. Arboreal remote camera stations also recorded terrestrial mammal species – Brown Antechinus (*Antechinus stuartii*) and Bush Rats (*Rattus fuscipes*) were the most frequently recorded species on arboreal remote cameras. A Swamp Rat (*Rattus lutreolus*) was also observed on an arboreal remote camera where the bait station had been placed in swamp forest in a large paperbark covered in a lattice of vines. Only one Common Ringtail Possum was recorded at an arboreal camera station on a Swamp Mahogany amongst a stand of Cabbage Tree Palms. The Squirrel Glider was recorded at one remote camera station placed in the Coastal Sand Apple – Blackbutt Forest in the western end of the study area in the vicinity of the proposed roadside batters.

Six Koala SAT surveys within the impact area did not locate any secondary evidence of koalas in the study area.

Terrestrial Mammals

Remote cameras recorded terrestrial mammals with very high frequency, some cameras recording several thousand images over the fifteen days of survey. By far the most frequently recorded mammals across all camera sites (arboreal and terrestrial) were Brown Antechinus and Bush Rats, with high numbers of Black Rats (*Rattus rattus*) also recorded at one terrestrial camera site. Swamp Rats and Brushtail Possums were recorded at several terrestrial camera sites. A Short-beaked Echidna (*Tachyglossus aculeatus*) and a Northern Brown Bandicoot (*Isoodon macrourus*) were each recorded at one remote camera station.

At one remote camera station placed in swamp forest, a Common Planigale (*Planigale maculata*; TSC Act Vulnerable) was recorded over several nights. The Common Planigale was observed moving through the dense Saw Sedge as it investigated the bait station. Multiple views allowed the planigale to be identified on the basis of its small size relative to the bait station (bait station lid diameter 10.4cm), triangular, flattened head with pointed snout, and tail shorter than head-body length.

One mouse, which could not be identified to species level, was recorded on remote cameras placed in Coastal Sand Apple – Blackbutt Forest. Based on known distribution and habitat preferences of small rodents, the most likely species in this photograph are either the House Mouse (*Mus musculus*) or the New Holland Mouse (*Pseudomys novaehollandiae*). House Mice are widespread throughout Australia, preferring disturbed environments and areas near human habitation. New Holland Mice occur in a variety of habitats in eastern coastal Australia, including wet heath and heathy sclerophyll forests on sandy substrates such as those occurring on site and in the surrounding area. A New Holland Mouse record exists in the Worimi Conservation Lands less than 1km to the south of the study area. Based on the location of the remote camera station in the Coastal Sand Apple – Blackbutt Forest amongst dense understorey and far away from areas of human habitation or disturbance (aside from the road), the New Holland Mouse is most likely. Applying the precautionary approach to the mouse species recorded in the study area, for the purposes of this assessment the New Holland Mouse is regarded as occurring in the study area.

In addition to the Black Rat, non-native species recorded on site included on European Red Fox (*Vulpes Vulpes*) recorded on a remote camera and domestic dogs (*Canis lupus familiaris*) observed opportunistically during diurnal surveys.

Nocturnal spotlighting surveys did not record any additional terrestrial mammal species.

Avifauna

A total of 23 bird species were recorded opportunistically or during the early morning and dusk bird census efforts. Birds were identified visually or by vocalisation during the surveys. Woodland bird species were among the most frequently observed such as, Grey Fantails, Scarlet Honeyeaters, White-cheeked Honeyeaters, and White-browed Scrubwrens. Rainbow Lorikeets and Scaly-breasted Lorikeets were seen overflying the study area and may forage on site. Generally, low numbers of woodland birds were recorded during bird census due to the interference from traffic noise, dense vegetation, and regular disturbance from vehicles on Nelson Bay Road.

Two adult White-bellied Sea-eagles (TSC Act Vulnerable), likely a pair, were observed coming in to roost adjacent to the study area on dusk in a large emergent Blackbutt with exposed,

defoliated upper canopy branches. One eagle flew low over the tree before continuing westward across Nelson Bay Road, while the other landed for a period of about 5 minutes before moving off in a south-westerly direction.

A Powerful Owl (TSC Act Vulnerable) responded to nocturnal call playback. This species may forage throughout the study area. Prey species for Powerful Owls, such as small and medium sized mammals, were recorded with high frequency on cameras and may be abundant in the study area.

Herpetofauna

One amphibian species and four reptile species were recorded during opportunistic and targeted surveys. The frog was identified by vocalisation, being the Striped Marsh Frog (Limnodynastes peronii). One skink species, the Delicate Skink (Lampropholis delicata), was encountered opportunistically during survey activities and during camera trapping across the study area. Scratch marks left by a Lace Monitor (Varanus varius) were observed in a large Blackbutt adjacent to the study area. Remote cameras also recorded Land Mullets (Egernia major) and a Red-bellied Black Snake (Pseudechis porphyriacus).

Microchiropterans Bats

A total of six microbat species were detected via the use of the Anabat express echo-location call recorder. Of these species, three are listed as Vulnerable under the TSC Act, specifically the Little Bent-wing Bat (Miniopterus australis), Eastern Bent-wing Bat (Miniopterus schreibersii oceanensis), and the Yellow-bellied Sheath-tailed Bat (Saccolaimus flaviventris). The three remaining microbats positively identified were the White-striped Free-tailed Bat (Austronomus australis), Gould’s Wattled Bat (Chalinolobus gouldii), and Ride’s Free-tail Bat (Mormopterus ridei), are all known common species.

Refer to upload "17025 Ecology Assessment Fern Bay RMS intersection V2.pdf" See Section 3 Results

3.2 Describe the hydrology relevant to the project area (including water flows).

The proposed action lies within a landscape of vegetated low dunes and interdune swales with generally well drained sandy soils, low gradients and low elevation. The proposed action will occur along existing roads and will extend drainage structures such as culverts and will not alter the drainage regimes of the existing roads.

Refer to upload: "NE160043_FERN BAY_DD_RevC_2019-03-08.pdf" Sheet Name: SM-0101 to SM-0503
Detailed Stormwater Plan, Stormwater Longitudinal Sections, Trench Drain Longitudinal Section, Culvert Sections, Culvert 2 Cast Insitu Base Slab Details, Erosion and Sediment Control Plan

The uploaded plans above detail the management of hydrology relevant to the project area.

Cross drainages are extensions of the existing road culverts. Culverts include scour protection for headwalls. Drainage long sections conform to RMS policies and standards.

3.3 Describe the soil and vegetation characteristics relevant to the project area.

Soil Landscape mapping of the area classifies the project area as Hawks Nest (hn) soil landscape. This landscape consists of low Holocene quartz sandsheets and low transgressive dunes. Soils are deep, well-drained Podzols and Siliceous Sands on dunes, and deep, poorly drained Humus Podzols on sandsheets.

The position of the project area within this soil landscape results in generally higher levels of soil development and organic matter build-up, as the site lies in a relatively landward position within the broader occurence of the Hawks Nest soil landscape.

Surface soils are moderately to lightly acid, with high to very high permeability.

As noted in Section 3.1 above, detailed flora surveys identified the following vegetation communities within the project area:

Coastal Sand Apple - Blackbutt Forest (0.58ha): Occurring on dunes

Swamp Mahogany – Paperbark Forest (1.12 hectares) : Occurring in depressions between dunes in poorly drained areas

Swamp Oak Sedge Forest (0.06 hectares): Occurring in depressions between dunes in poorly drained areas at the immediate road verge interface (occurrence possibly related to past disturbance during road construction)

Degraded Road Verge Vegetation: Occurring in the disturbed soils of the immidiate road verge and batter environment, where ongoing land management (mowing) limits establishment of native trees and shrubs

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area.

Not Applicable

3.5 Describe the status of native vegetation relevant to the project area.

Swamp Mahogany – Paperbark Forest (1.12 hectares) is commensurate with the TSC Act listed Endangered Ecological Community Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South-East Corner Bioregion.

Swamp Oak Sedge Forest (0.06 hectares) is commensurate with the TSC Act listed

Endangered Ecological Community Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions; however, is not commensurate with the EPBC Act listed Vulnerable Ecological Community Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland due to the small patch size (<0.5 hectares).

Coastal Sand Apple - Blackbutt Forest (0.58 hectares) is not commensurate with a State or Commonwealth listed threatened ecological community.

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The local relief of the Hawks Nest soil landscape where the project area occurs is described as <3m local relief, <10% slope gradients, and elevations of 3-12 meters.

The surveyed height of the project area lies between 2 and 3 meters, with the exception of the edge of shoulder (batters) where heights of 3.8 to 4.7 meters occur.

Cut slopes of batters will be locally steepened to a grade up to 4:1, 3:1, and 2.7:1 at locations where the proposed road lanes approach close to existing vegetated dunes. The proposed verge zone batters of the road will be up to a grade of 2:1.

3.7 Describe the current condition of the environment relevant to the project area.

The area of the proposed works (study area) is densely forested with the exception of the mown road verge environment, with Coastal Sand Apple – Blackbutt Forest occupying elevated sites on low sand hills while Swamp Mahogany – Paperbark Forest covers the extensive swales between sand hills.

The road verge (from 1.5 to 5 meters in width) is primarily exotic weed cover. Weed species present include Eragrostis curvula (African Love Grass), Melinus repens (Red Natal Grass), Cenchrus clandestinus (Kikuyu), Megathyrus maximus (Green Panic), Lantana camara and Conyza sp. Exotic species observed throughout the Swamp Forests of site include: Alternanthera philoxeroides (Alligator Weed) and Lantana camara (Lantana).

High weed incidence was observed in the degraded road verge environment (extending 1.5 meters to 5 meters from the existing pavement), with generally low weed incidence in the native vegetation areas, with the exception of Lantana and Alligator Weed infestations. Lantana in particular forms very dense thickets in some areas, most often at the interface between Swamp Mahogany – Paperbark Forest and Coastal Sand Apple - Blackbutt Forest, and at the interface between Swamp Mahogany – Paperbark Forest and the disturbed road verge vegetation.

No significant erosion was observed in the landscape during surveys. The soils of the project area are described as having low erodibility to non-concentrated flows and high erodibility to concentrated flows and wind. Generally, the vegetated, highly permeable sandy substrate appears to have a low susceptibility to erosion.

High numbers of feral animals were recorded on remote sensing cameras set up within and

around the project area. Foxes, dogs, Black Rats, and House Mice were recorded.

The swamp forests which occupy most of the study area have a nearly uniformly dense, tall ground cover of sedges (*Gahnia clarkei*), Swamp Water Fern (*Blechnum indicum*), and Jointed Twig-rush (*Baumea articulata*). Patches of open ground cover exist at a few locations, mostly in association with stands of Cabbage Tree Palm (*Livistonia australis*). In these areas, deep mats of palm fronds cover the ground. Sedges grow amongst a deep litter of decaying plant material, with moderate amounts of woody debris. Small open patches in the sedges are present where water may accumulate following heavy rain. Along the existing road verge, the ground cover consists of mown grasses over compacted sandy soils. Ground cover across the study area is likely to provide adequate shelter for secretive terrestrial mammals, such as the Swamp Rat (*Rattus lutreolus*), as well as small skinks and frogs. The understorey is dominated by paperbarks, with more open areas where water collects and greater density towards higher ground. The understorey could provide seasonal blossom as well as insects among the foliage for foraging woodland birds. Canopy vegetation is dominated by larger paperbarks (mostly Broad-leafed Paperbark *Melaleuca quinquenervia*) with some Swamp Mahogany, a few patches of Swamp Oak (*Casuarina glauca*) as well as patches of Cabbage Tree Palm. Swamp Mahogany is an important winter flowering food tree for nectivorous birds including the Swift Parrot, Regent Honeyeater, Little Lorikeet, and a variety of other honeyeater and lorikeet species, and the paperbarks may provide seasonal blossom at other times of the year. Swamp Mahogany is also an important koala food tree, while Broad-leafed Paperbark and Swamp Oak are listed by the PSC CKPoM as a species important to koalas in the area. Cabbage Tree Palms on site may be important to frugivorous birds and the Grey-headed Flying-fox. The dense canopy and understorey vegetation is likely to provide forage to a wide range of woodland birds such as thornbills, fantails, and whistlers which forage for insects amongst the foliage. No tree hollows or other important arboreal habitat features were found within the swamp forests. This may relate to the species of trees found in swamp forests not forming hollows through natural processes.

Coastal Sand Apple – Blackbutt Forest occupies a few low sand hills at the point of the intersection with Seaside Boulevard and in the west of the study area. The ground cover is moderately dense to densely covered with a floristically diverse assemblage of vines, grassy, herbaceous, and subshrub species. The ground cover has good structural elements such as wood litter, fallen logs, burrows, and dense vegetation thickets, which together with the floristic diversity and sandy substrate provides high quality habitat for terrestrial fauna species such as small mammals and reptiles. Camera traps recorded small mammals at high frequency, including Brown Antechinus, Bush Rats, and Black Rats. The ground cover vegetation likely provides a range of seeds, fruits, and vegetative forage for these species throughout the year. Though not confidently recorded in MJD Environmental surveys, New Holland Mouse has been recorded in the contiguous landscape and may forage among the ground cover of the Coastal Sand Apple – Blackbutt Forest. A varied understorey and shrub layer provides good cover for the above mentioned terrestrial species, as well as forage in the form of blossom, insects, and seeds for these species and woodland birds. The canopy is dominated by Blackbutt and Smooth-bark Apple, with occasional Old Man Banksia. These canopy species all provide good foraging resources for nectivorous species, such as honeyeaters, lorikeets, gliders, as well as insects for gliders, thornbills, honeyeaters, Golden Whistlers, and Eastern Yellow Robins. Several large Blackbutt and Smooth-barked Apple were observed to contain hollows, which could provide shelter for Brush-tail Possums, which were frequently observed on cameras and spotlighting, as well as Squirrel Gliders and Feathertail Gliders, which were observed on

cameras, large forest owls, such as the Powerful Owl observed during call playback, microbats, Lace Monitors, and a variety of hollow-nesting birds.

No permanent aquatic habitat occurs within the study area. Swamp Mahogany – Paperbark Forests may contain ephemeral pools during wetter periods. Dense, tall Saw Sedge (Gahnia clarkei) dominates most of these ephemeral wetlands, beneath moderately dense paperbarks. The very dense groundcover vegetation beneath a closed canopy would preclude most aquatic birds from utilising the wetlands. Only a few, restricted locations may contain open water in very wet conditions, and these may offer only poor quality habitat for more secretive water birds such as bitterns and snipes. These wetlands may provide breeding habitat for the Striped Marsh Frog recorded during surveys.

3.8 Describe any Commonwealth Heritage Places or other places recognised as having heritage values relevant to the project area.

Not Applicable

3.9 Describe any Indigenous heritage values relevant to the project area.

The project approval for Seaside Village estate Fern Bay included an Aboriginal Archaeology assessment as part of the EIS (Annex I) and development approval process. Subsequent to the development approval an Aboriginal Heritage Reserves Cultural Heritage Management Plan (2012) was prepared in conjunction with local Indigenous groups. The management plan identifies the process/protocols in place for identifying and relocating Aboriginal items if unearthed during construction works. The protocol in conjunction with Schedule 3 of the consent also identifies that local Indigenous group representatives are to be present during construction works on the site. This management plan is currently being updated in conjunction with the NSW Office of Environment and Heritage (OEH), however, the same protocols for managing construction works will still apply. Local indigenous representatives will be on site during the construction of the proposed works in accordance with the management plan.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area.

Nelson Bay Road reserve is owned by the Crown and managed by the NSW Roads and Maritime Services.

Lot 21 DP 270466 is owned by Fern Bay No. 1 Pty Ltd

Lot 46 DP 280008 is owned by Fern Bay No. 1 Pty Ltd

3.11 Describe any existing or any proposed uses relevant to the project area.

The project area currently consists of the immediate road verge environment of Seaside Boulevard and Nelson Bay Road, which is the main arterial link connecting Newcastle to Williamtown and the Tomaree Peninsula. Nelson Bay Road carries a large volume of local and tourist traffic into the Nelson Bay area. Seaside Boulevard is the main thoroughfare for Fern Bay Seaside Village residential subdivision, which will ultimately comprise approximately 820 residential lots in total. An existing roundabout connects Seaside Boulevard to Nelson Bay Road southwest of the project area. The proposed new intersection will create a secondary access for the estate off Nelson Bay Road. The existing point of intersection between the proposed Seaside Boulevard and Nelson Bay Road is a fire trail which serves as the secondary point of egress in accordance with NSW Rural Fire Service requirements for bushfire protection.

Section 4 - Measures to avoid or reduce impacts

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action.

Koala

Habitat loss: Up to 1.12 hectares of habitat containing koala food trees will be cleared. The Koala Spot Assessment Technique (SAT) was employed accross the site in accordance with avoidance requirements of the Port Stephens Council Comprehensive Koala Plan of Management. Six SATs were undertaken accross the project area. SATs failed to detect any evidence of koala activity (sightings or scats). Therefore, the koala activity levels throughout the project area were assessed to be low, and requirements to avoid areas with high levels of koala activity were deemed to have been met.

Habitat fragmentation: The areas to be cleared will involve a minor augmentation of existing areas of fragmentation, namely Nelson Bay Road and Seaside Boulevard. The widening of these two existing roadway corridors has been increased only to the extent required to conform with NSW Roads and Maritime Services (RMS) policy and practice.

Habitat degradation: The project area lies within an environment subject to existing habitat degradation, including weed invasion associated with the existing roads. The proposed action will not exacerbate the habitat degradation of the road verge environment beyond existing levels.

Vehicle strike: Speed limits of the adjacent Nelson Bay Road are 100kph, which creates a high level of existing threat. The proposed acceleration and deceleration lanes will introduce traffic to a marginally wider road corridor, but at speeds significantly less than 100kph. Likewise Seaside Boulevard will have a speed limit set at 60kph, which is low when compared to the existing high level of threat.

New Holland Mouse, Swift Parrot, Regent Honeyeater, Spotted-tailed Quoll, Green and Golden Bell Frog, Grey-headed Flying Fox

All of the above species will experience a small reduction (up to 1.63 hectares native vegetation) in the potential area of occupancy, area of potential foraging habitat, or area of intermittently used (seasonal) potential foraging habitat.

The proposed action will involve clearing only along existing roads and only to the extent required to conform with RMS policy and practice. No extraneous features have been included in the design, and no features could reasonably be removed without contravening RMS policy and practice. Therefore, no further avoidance or reduction of impacts may be achieved when taking into account the design requirements of the intersection.

Leafless Tongue-orchid (Cryptostylis hunteriana)

This species has not been recorded in the locality and is not known to show a habitat preference for the habitats found in the project area. This species will experience a small reduction in potential area of occupancy (1.63 hectares of native vegetation, 0.02 hectares of cleared easement, and 0.32 hectares of degraded road verge).

The proposed action will involve clearing only along existing roads and only to the extent required to conform with RMS policy and practice. No extraneous features have been included in the design, and no features could reasonably be removed without contravening RMS policy and practice. Therefore, no further avoidance or reduction of impacts may be achieved when taking into account the design requirements of the intersection.

Newcastle Doubletail (Diuris praecox)

This species has been recorded in the locality and is known to show a habitat preference for the habitats found in the project area (Coastal Sand Apple Blackbutt Forest, including easements where there is less competition from other plants). This species will experience a small reduction in potential area of occupancy (1.63 hectares of native vegetation, 0.02 hectares of cleared easement, and 0.32 hectares of degraded road verge).

The proposed action will involve clearing only along existing roads and only to the extent required to conform with RMS policy and practice. No extraneous features have been included in the design, and no features could reasonably be removed without contravening RMS policy and practice. Therefore, no further avoidance or reduction of impacts may be achieved when taking into account the design requirements of the intersection.

Earp's Gum (Eucalyptus parramattensis subsp. decadens)

Targeted searches were conducted within the entire project area for this conspicuous species and no individuals were found within the area of direct or indirect impacts. Therefore, all individuals potentially occurring in the locality have been avoided.

Coastal Swamp Oak (Casuarina glauca) Forest

A very limited occurence of vegetation which conforms to the key diagnostic characteristics of this vegetation community (however does not meet minimum patch size criteria and therefore is not considered a Matter of National Environmental Significance) occurs in the immidiate road verge environment of Nelson Bay Road. This small (0.06 hectare) patch cannot be avoided as it lies within the only possible alignment of the acceleration lane of the intersection.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action,

describe the proposed environmental outcomes to be achieved.

The proposed action seeks to construct a new intersection at Nelson Bay Road and Seaside Boulevard as required by NSW DPE Project Approval MP06_0250. The proposed action seeks to satisfy the requirements of RMS and the current development approval with the minimum possible impact to protected matters, including no loss of known threatened flora species, minimal harm to threatened or migratory fauna species habitat and no direct loss of threatened fauna species, minimum clearing of endangered ecological communities, and no loss of known heritage artefacts.

Section 5 – Conclusion on the likelihood of significant impacts

A checkbox tick identifies each of the matters of National Environmental Significance you identified in section 2 of this application as likely to be a significant impact.

Review the matters you have identified below. If a matter ticked below has been incorrectly identified you will need to return to Section 2 to edit.

5.1.1 World Heritage Properties

No

5.1.2 National Heritage Places

No

5.1.3 Wetlands of International Importance (declared Ramsar Wetlands)

No

5.1.4 Listed threatened species or any threatened ecological community

No

5.1.5 Listed migratory species

No

5.1.6 Commonwealth marine environment

No

5.1.7 Protection of the environment from actions involving Commonwealth land

No

5.1.8 Great Barrier Reef Marine Park

No

5.1.9 A water resource, in relation to coal/gas/mining

No

5.1.10 Protection of the environment from nuclear actions

No

5.1.11 Protection of the environment from Commonwealth actions

No

5.1.12 Commonwealth Heritage places overseas

No

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action.

World Heritage Properties:

The proposed action is not within a World Heritage area and is not in close proximity to any such area.

National Heritage Places:

The proposed action is not within a National Heritage area and is not in close proximity to any such area.

Wetlands of International Importance (declared Ramsar wetlands):

The proposed action is not within a Wetland of International Importance or declared Ramsar wetland. A protected matters search nominates the following wetlands of international importance:

Hunter estuary wetlands

The proposed action is located within one kilometre of Ramsar listed estuarine wetlands of Hunter Estuary Wetlands within Kooragang Nature Reserve. These significant wetlands include internationally important habitat for migratory shorebirds listed under the Japan-Australia Migratory Birds Agreement (JAMBA) and China-Australia Migratory Birds Agreement (CAMBA). The proposed action will not directly impact this wetland. While the proposed action will not affect drainages which flow into this wetland. The hydrology of the local area including sediment flows and water quality will not be affected by the proposed action such that a significant impact to this Wetland of International Importance is likely to occur.

Listed Threatened Species and Communities:

Koala (Refer to Appendix 3 "EPBC Act Assessment of Significance - Koala" found in file upload "17025 Ecology Assessment Fern Bay RMS intersection V2.pdf")

Habitat Loss: 1.12 hectares of Swamp Mahogany - Paperbark Forest will be cleared. This is a small impact area relative to guidance in Figure 2 of *EPBC Act referral guidelines for the vulnerable koala* (referral guidelines). Following guidance in Section 7 of the referral guidelines,

a Koala Habitat Appraisal returns a habitat score of 5. While lands with a habitat score greater than 5 meet criteria for “critical habitat” under the referral guidelines, guidance provided in Figure 2 of the referral guidelines indicates that clearing 1.2ha of koala habitat with a habitat score of 5 would not meet the threshold of significant impact. Combined with the relatively low number of koala records in the southern Stockton Bight region (NSW Bionet) compared to areas further north (the Tomaree Peninsula) which are at least partially separated from the site by barriers to dispersal, the level of impact to the koala resulting from the proposal is likely to be low.

Barrier to dispersal and fragmentation: The project area has high levels of existing fragmentation due to the presence of Nelson Bay Road. Koalas are likely to continue moving through the landscape within the 200m wide ecological corridor which runs parallel to Nelson Bay Road and across Seaside Boulevard. This ecological corridor is a conservation offset associated with the adjacent Fern Bay Seaside Village.

Vehicle strike: The study area currently has a high risk of vehicle strike on Nelson Bay Road, which is a high traffic main arterial link road with a speed limit of 100 km/h. Despite this existing hazard, koala deaths are seldom reported on this road in the vicinity of the study area (likely related to the low number of koalas occurring the southern Stockton Bight). Residual impacts of the intersection are mitigated due to the speed limit of Seaside Boulevard being below 60 km/h. Also, the acceleration and deceleration lanes will result in vehicle traffic traveling at less than 100 km/h at the point where wildlife may enter the roadway, and motorists are likely to be more alert while making turns into and out of Seaside Boulevard, therefore potentially reducing the risk of vehicle strike.

New Holland Mouse (Refer to Appendix 3 "EPBC Act Assessment of Significance - New Holland Mouse" found in file upload "17025 Ecology Assessment Fern Bay RMS intersection V2.pdf")

Following guidance in *Matters of National Environmental Significance: Significant impact guidelines 1.1*:

Habitat loss: Due to the extent of native vegetation clearing (1.63ha), the local population is likely to experience a small reduction in habitat where local individuals may be resident, which due to the variation in this species abundance in response to stochastic events (preferring vegetation of a mid-succession age after fire or disturbance), may not be permanently occupied. While the small linear area of vegetation clearing will reduce available foraging and shelter habitat, any potential decrease in population size is likely to be small and more highly influenced by factors unrelated to the proposal, such as fire frequency.

The reduction in area of occupancy will occur primarily in marginal swamp forest habitat with a dense sedge groundcover lacking the floristic diversity of the preferred wet heath habitats in the surrounding locality.

The reduction in area of occupancy is small by comparison to the estimated total area of occupancy of 42,000 hectares (Department of Environment 2010), and the large area of contiguous habitat in the Stockton Bight landscape.

Swift Parrot (Refer to Appendix 3 "TSC Act 7-Part Test" found in file upload "17025 Ecology

Assessment Fern Bay RMS intersection V2.pdf")

While the proposal will result in the loss of a small patch of potential winter foraging habitat (1.12 hectares of Swamp Mahogany - Paperbark Forest) for this species, extensive tracts of similar forests will remain in the areas immediately surrounding the site and in the wider region, including areas conserved within the adjacent Fern Bay Seaside Village (36.9 hectares of conserved Swamp Mahogany - Paperbark Forest in the conservation reserves of the estate). Also, the utilisation of forests on site is likely intermittent, coinciding with major flowering events in the area, and as such the site is likely to be inconsistently utilised in its current condition.

The Swamp Mahogany – Paperbark Forest in the project area was found to be dominated by Melaleuca quinquenerva, with fewer Swamp Mahogany, and very low numbers of large mature Swamp Mahogany, in the canopy. Therefore the potential abundance of winter flower is likely to be relatively low.

All available Swift Parrot records point to a pattern of distribution and habitat utilisation which suggests that the Central Coast (ca. Morisset, Wyee, Belmont) and Lower Hunter (ca. Ellalong, Kurri Kurri, Werakata) represent priority sites for conservation management as set out in Table 3 of the National Recovery Plan for the Swift Parrot, and there is little evidence that any priority sites in the Port Stephens area may be identified in the future. The recovery plan states that “Habitat critical to the survival of the Swift Parrot includes; those areas of priority habitat for which the Swift Parrot has a level of site fidelity or possess phenological characteristics likely to be of importance to the Swift Parrot or are otherwise identified by the recovery team.” The site is not likely to contain priority habitat. The site does not support Swift Parrots over successive years or extended periods of time, and so there is no site fidelity apparent. The site has not been identified by the Swift Parrot recovery team in any published reports. While Priority sites/regions for Victoria, Queensland, and Tasmania are explicitly stated in Table 3 of the Recovery Plan, Priority sites/regions for New South Wales are yet to be identified. Based on the available records for the region, the site is not likely to be identified as a priority site/region.

Existing records (Atlas of Living Australia; Birdata; Bionet; Hunter Bird Observers Club 2005-2015; Birdlife 2009-2017) and ERM surveys (for the Fern Bay Seaside Village) suggest that the site and the wider Port Stephens area are unlikely to be used repeatedly between seasons. HBOC annual bird reports (2006-2014) show that the Central Coast region has been visited by significant numbers in 2007, 2008, 2010, 2011, and 2014. The Lower Hunter Region has been visited in 2008, 2009, 2012, and 2013.

Records since the time of ERM assessment show only sporadic occurrence in the Tilligery Peninsula and further north to Crowdy Bay. HBOC (2002) records a significant influx of Swift Parrots into the Port Stephens area in 2002, but no such large migrations into the area have occurred since, and no records from the current project area were associated with the 2002 Swift Parrot migration event.

This regional survey work suggests that there is site fidelity regionally in the Central Coast and Lower Hunter Valley. Available records do not suggest site fidelity anywhere in the Port Stephens area.

Existing records (ALA; Birdata; Bionet; HBOC 2005-2015; Birdlife 2009-2017) and ERM surveys suggest that the site and the wider Port Stephens area are unlikely to be used by large

proportions of the population. Large numbers of Swift Parrots have been recorded regionally in the Central Coast in Belmont (100 birds in 2007), Dora Creek (102 birds in 2011), Eraring (40 birds in 2011), Rathmines (40 birds in 2014), and Swansea (20 birds in 2008) (HBOC 2005-2015). In the Lower Hunter, 200-300+ birds were recorded in 2012 in Kurri Kurri, Cessnock, Quorrobolong/Ellalong, Werakata, and Singleton Army Base (HBOC 2005-2015). Birdlife Australia (2011) also notes around 400 birds in the Central Coast and Lower Hunter in 2011. The largest number of birds recorded in the Port Stephens area in the period since ERM assessment was 10-15 birds at Oyster Cove in 2014. As noted in the ERM SIS assessment, large numbers were recorded in 2002 in Williamtown (120+ birds), Fingal Bay (49 birds), Medowie (30+ birds), and Soldiers Point (20+ birds). No other influx of Swift Parrots in such numbers has occurred since. Therefore, a significant body of regional survey work reflecting both HBOC member observations and ongoing annual monitoring work by Birdlife Australia's Woodland Birds for Biodiversity project, shows the same pattern of distribution and habitat utilisation regionally. Large proportions of the Swift Parrot population have not been observed on site or the lower Stockton Bight area to date.

Earp's Gum (Eucalyptus parramattensis subsp. decadens)

This conspicuous species was not recorded during targeted threatened species searches on site, covering the entire extent of the project area.

Newcastle Doubletail (Diuris praecox) (Refer to Appendix 3 "TSC Act 7-Part Test" found in file upload "17025 Ecology Assessment Fern Bay RMS intersection V2.pdf")

The proposal will result in the removal of 0.45ha of potential habitat (Open Forest) which represents a small decrease in potential area of occupancy for the local population.

Leafless Tongue-orchid (Cryptostylis hunteriana) (Refer to Appendix 3 "TSC Act 7-Part Test" found in file upload "17025 Ecology Assessment Fern Bay RMS intersection V2.pdf")

This species has not been recorded within 10km of the project area (NSW Bionet). This species has been recorded in a broad range of habitat types, and as such open forests within the project area could represent potential habitat. In the Port Stephens region this species has largely been recorded from open forest on volcanic hills where rock outcrops are found. The study area does not support this locally preferred habitat. This species is considered unlikely to occur, however the proposal will result in a small (approx 0.45ha) reduction in area of habitat.

Regent Honeyeater (Refer to Appendix 3 "TSC Act 7-Part Test" found in file upload "17025 Ecology Assessment Fern Bay RMS intersection V2.pdf")

There is no evidence of current use or occupation of the project area by this species. No records exist within a Bionet 10km search of the area. The site provides seasonal foraging resources which could be utilised by the Regent Honeyeater during intermittent migrations into coastal regions. The proposed action will result in a small (1.12ha) reduction in locally available foraging resources for this species. Large areas of similar habitat are conserved in the surrounding locality, incuding 36.9ha in the conservation areas of Fern Bay Seaside Village, and larger areas in Worimi Regional Park.

Spotted-tailed Quoll (Refer to Appendix 3 "TSC Act 7-Part Test" found in file upload "17025

Ecology Assessment Fern Bay RMS intersection V2.pdf")

This species has not been recorded within 10km of the project area (NSW Bionet). The proposal will result in the removal of a small patch of remnant vegetation which may provide potential denning and foraging habitat; however, it is considered that the area of clearing that represents a reduction in potential area of denning and foraging habitat is unlikely to be significant within the context of this species home range (F=750ha and M=3500ha) and would not lead to an adverse effect on the life cycle of this species such that a viable local population of Spotted-tailed Quoll is likely to be placed at risk of extinction.

Grey-headed Flying Fox (Refer to Appendix 3 "TSC Act 7-Part Test" found in file upload "17025 Ecology Assessment Fern Bay RMS intersection V2.pdf")

No signs of past or current roost camps were observed (nearest being Fullerton Cove). The proposal will clear a linear strip of foraging habitat. Similar vegetation will be retained in the study area and furthermore is part of a large area of contiguous bushland surrounding the study area. It is considered that the area of clearing represents a small reduction in potential area of foraging habitat for this species, however is unlikely to have a significant impact on the local population.

Green and Golden Bell Frog (Refer to Section 4.2 Table 4 Likelihood of Occurrence and Impact Assessment found in file upload "17025 Ecology Assessment Fern Bay RMS intersection V2.pdf")

While this species has been recorded in the locality (7 records within 10km; NSW Bionet), wetland habitats preferred for breeding due not occur within the dense swamp forests of the project area.

Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland (Refer to Section 4.3.4 Commonwealth EPBC Act found in file upload "17025 Ecology Assessment Fern Bay RMS intersection V2.pdf")

The vegetation which has been identified as Coastal Swamp Oak Forest is 0.06ha in area. The current patch size threshold for a small patch as per Table 1 of the conservation advice for this community is at least 0.5ha.

Listed Migratory Species:

White-bellied Sea-eagle; Eastern Osprey

Clearing 1.63ha of forest habitats on site will remove some potential perching or roosting areas; however, no suitable large emergent trees or stags were observed in the project area which could be used for nesting.

Black-faced Monarch; Spectacled Monarch; Satin Flycatcher; Rufous Fantail

Clearing 1.63ha of forest habitats on site will remove a small area of local potential foraging habitat for these species; however, the small area of clearing by comparison to the larger forested area of the locality is no likely to significantly impact these migratory species.

Commonwealth Marine Areas:

The proposed action is not part of a Commonwealth Marine Area but is in close proximity to;

EEZ and Territorial Sea

The proposed action is terrestrial in nature and will not impact the marine environment.

Protection of the environment from actions involving Commonwealth land:

The proposed action does not involve Commonwealth land.

Great Barrier Reef Marine Parks:

The proposed action is not part of or within close proximity to any Great Barrier Reef Marine Park.

A water resource, in relation to coal seam gas development and large coal mining development:

The proposed action is related to residential development and as such is not or does not form part of a coal mining or coal seam gas development.

Protection of the environment from nuclear actions:

The proposed action is not and does not form part of a nuclear action.

Protection of the environment from Commonwealth actions:

The proposed action is not and does not form part of a Commonwealth action.

Commonwealth Heritage places overseas:

The proposed action will occur within mainland Australia in the state of New South Wales.

Section 6 – Environmental record of the person proposing to take the action

Provide details of any proceedings under Commonwealth, State or Territory law against the person proposing to take the action that pertain to the protection of the environment or the conservation and sustainable use of natural resources.

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Please explain in further detail.

Fern Bay No 1 Pty Ltd is undertaking the action which is the subject of this referral. Rawson Communities Pty Ltd (the proponent) was contacted by the Department of Environment and Energy (DEE) requesting information in regard to an allegation regarding the clearing of habitat for threatened species listed under the EPBC Act (Reference: CAS 2952; Date: 14 November 2017).

Further correspondence from DEE informed Rawson Communities Pty Ltd that the DEE had been making inquiries into the allegation that since May 2014 approximately 30 hectares of native vegetation at Seaside Estate, Seaside Boulevard, Fern Bay had been cleared as part of residential development, and that the DEE was concerned that the action may have impacted on the critically endangered Swift Parrot and the vulnerable Koala without approval under the EPBC Act (Reference: CAS2952; Date: 12 January 2018).

The DEE informed Rawson Communities Pty Ltd that the DEE is of the position that Rawson Communities Pty Ltd failed to fulfil their duties to refer an action which has, will have or is likely to have a significant impact on matters of national environmental significance. The DEE decided to bring the matter to conclusion by formally warning that if Rawson Communities Pty Ltd intends to take any future action that is likely to have a significant impact on protected matters, they must first obtain all necessary approvals under national environmental law (Reference: CAS2952; Date: 23 November 2018).

While the proposed new intersection works have been approved at the State level as part of the consent for Seaside Village, Fern Bay, the developer is ensuring all Commonwealth matters are being addressed for the clearing of the proposed road works, noting that the residential areas of the estate have previously been cleared.

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application.

No proceedings under a Commonwealth, State or Territory law against the person proposing to

take the action have occurred.

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

No

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

No

Section 7 – Information sources

You are required to provide the references used in preparing the referral including the reliability of the source.

7.1 List references used in preparing the referral (please provide the reference source reliability and any uncertainties of source).

Reference Source	Reliability	Uncertainties
(MJD Environmental 2018) Ecological Assessment Fern Bay Development, Nelson Bay Road Secondary Access. Prepared for Fern Bay No. 1 Pty Ltd	Reliable. Current survey of the project area and review of recent survey work in the locality.	None
Department of the Environment Commonwealth Biodiversity: Species Profile and Threats Database (SPRAT)	Reliable. Government publication.	None
Department of the Environment and Energy (2018) EPBC Act Protected Matter Search tool	Reliable. Government publication.	Location of records not provided.
NSW OEH Threatened Species Profile Search	Reliable. Government publication.	None
Saunders, D.L. and Tzaros, C.L. (2011) National Recovery Plan for the Swift Parrot Lathamus discolour. Birds Australia, Melbourne.	Reliable. Peer reviewed publication.	None.
Fox, B.J. and McKay, G.M. (1981) Small mammal responses to pyric successional changes in eucalypt forest. Australian Journal of Ecology 9: 241-252	Reliable. Peer reviewed publication.	None
Department of the Environment and Energy (2010) Approved Conservation Advice for Pseudomys novaehollandiae (New Holland Mouse). s266B of the Environment Protection and Biodiversity Conservation Act 1999.	Reliable. Government publication.	None
Department of the Environment (2016) The National Recovery Plan for the Regent Honeyeater	Reliable. Government publication.	None

Reference Source	Reliability	Uncertainties
(Anthochaera phrygia)		
Department of Environment, Land, Water & Planning (2016) National Recovery Plan for the Spotted-tailed Quoll (Dasyurus maculatus).	Reliable. Government publication.	None
ERM (2009) Annex P - Fern Bay Seaside Village Ecology Assessment Report. Report prepared for Aspen Group Pty Ltd. Project No. 0063154	Reliable. Peer reviewed report.	Survey data at least 10 years old.
ERM (2005) Annex R - Fern Bay Estate Species Impact Statement. Report prepared for Winten Property Group and Continental Venture Capital Pty Ltd	Reliable. Peer reviewed report.	Survey data at least 10 years old.
Murphy CL, 1995, Soil Landscapes of the Port Stephens 1:100,000 Sheet, NSW Department of Land and Water Conservation, Sydney.	Reliable. Government publication.	None
Acor Consultants (2019) PORT STEPHENS COUNCIL MR108 NELSON BAY ROAD INTERSECTION OF NELSON BAY ROAD AND SEASIDE BOULEVARD 2.167km TO 3.152km NORTH OF NELSON BAY ROAD DIVIDED CARRIAGEWAY ROAD WORKS DETAILED DESIGN	Reliable. Detailed survey and design drawings for the intersection.	None
Atlas of Living Australia (ALA) website at https://www.ala.org.au/ Accessed 27 March 2018	Moderate	Records sourced from parties of varying reliability.
Australian Koala Foundation Koala Habitat Mapping. KoalaMap at https://www.savethekoala.com/koala-map Accessed 27 March 2018	Moderate	Records sourced from parties of varying reliability.
Birdlife Australia (n.d.) Birdata https://birdata.birdlife.org.au/ Accessed 27 March 2018	Reliable	None. Curated source of bird sighting records.
Birdlife Australia (2009 – 2017) Swift Parrot and Regent Honeyeater survey update (reports reviewed 2009 through	Reliable	None.

Reference Source	Reliability	Uncertainties
2017). http://birdlife.org.au/projects/woodland-birds-for-biodiversity/latest-news-wl		
Birdlife Australia (2014) Swift Parrots and Regent Honeyeaters in the Lake Macquarie City Council area New South Wales: An Assessment of Status, Identification of High Priority Habitats and Recommendations for Conservation. Prepared by Birdlife Australia for Lake Macquarie City Council.	Reliable	None.
(DECC) Department of Environment and Climate Change (2008) Approved Recovery Plan – Recovery plan for the koala (Phascolarctos cinereus) www.environment.nsw.gov.au/research-and-publications/publications-search/recovery-plan-for-the-koala-phascolarctos-cinereus Accessed March 2018	Reliable	None.
Department of the Environment (2015) Conservation Advice Anthochaera phrygia regent honeyeater. http://www.environment.gov.au/biodiversity/threatened/species/pubs/82338-conservation-advice.pdf	Reliable	None.
Department of the Environment (2016) The National Recovery Plan for the Regent Honeyeater (Anthochaera phrygia) https://www.environment.gov.au/system/files/resources/286c0b52-815e-4a6c-9d55-8498c174a057/files/national-recovery-plan-regent-honeyeater.pdf	Reliable	None.
Department of the Environment (2016) Conservation Advice Lathamus discolour Swift Parrot http://www.environment.gov.au/biodiversity/threatened/species/pubs/744-conservation-	Reliable	None.

Reference Source	Reliability	Uncertainties
advice-05052016.pdf		
Department of the Environment and Energy (2010) Approved Conservation Advice for Pseudomys novaehollandiae (New Holland Mouse). s266B of the Environment Protection and Biodiversity Conservation Act 1999. http://www.environment.gov.au/biodiversity/threatened/species/pubs/96-conservation-advice.pdf	Reliable	None.
Department of the Environment and Energy (2018) Conservation advice (incorporating listing advice) for the Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community http://www.environment.gov.au/biodiversity/threatened/communities/pubs/141-conservation-advice.pdf	Reliable	None.
Department of the Environment and Energy (2018) EPBC Act Protected Matter Search tool. Accessed 22 March 2019	Reliable	Location of species records not provided.
Department of the Environment and Energy (2018) Species Profile and Threats Database (SPRAT).	Reliable	None.
eBird (n.d.) Species maps database. https://ebird.org/map/	Low	Unverified records uploaded to online database.
(HBOC) Hunter Bird Observers Club (2005-2015) Annual Bird Report (reports reviewed 2005 through 2014). https://www.hboc.org.au/publications/annual-bird-report/ - Stuart, A. (Ed.) (2015) Hunter Region Annual Bird Report Number 22 (2014), Hunter Bird Observers Club Inc., New Lambton, Australia - Stuart, A. (Ed.) (2014) Hunter Region Annual Bird Report Number 21 (2013), Hunter Bird Observers Club Inc., New	Reliable	None. Curated source of bird sighting records.

Reference Source	Reliability	Uncertainties
Lambton Australia - Stuart, A. (Ed.) (2013) Hunter Region Annual Bird Report Number 20 (2012), Hunter Bird Observers Club Inc., New Lambton Australia - Stuart, A. (Ed.) (2012) Hunter Region Annual Bird Report Number 19 (2011), Hunter Bird Observers Club Inc., New Lambton Australia - Stuart, A. (Ed.) (2011) Hunter Region Annual Bird Report Number 18 (2010), Hunter Bird Observers Club Inc., New Lambton Australia - Stuart, A. (Ed.) (2010) Hunter Region Annual Bird Report Number 17 (2009), Hunter Bird Observers Club Inc., New Lambton Australia - Stuart, A. (Ed.) (2009) Hunter Region Annual Bird Report Number 16 (2008), Hunter Bird Observers Club Inc., New Lambton Australia - Stuart, A. (Ed.) (2008) Hunter Region Annual Bird Report Number 15 (2007), Hunter Bird Observers Club Inc., New Lambton Australia - Stuart, A. (Ed.) (2007) Hunter Region Annual Bird Report Number 14 (2006), Hunter Bird Observers Club Inc., New Lambton Australia - Stuart, A. (Ed.) (2006) Hunter Region Annual Bird Report Number 13 (2005), Hunter Bird Observers Club Inc., New Lambton Australia - Stuart, A. (Ed.) (2005) Hunter Region Annual Bird Report Number 12 (2004), Hunter Bird Observers Club Inc., New Lambton Australia		
Port Stephens Council (2002) Port Stephens Comprehensive Koala Plan of Management (CKPoM) – June 2002. Prepared by Port Stephens	Reliable	None.

Reference Source	Reliability	Uncertainties
Council with the Australian Koala Foundation.		
Port Stephens Koalas (2016-2018) Newsletter Issue (newsletters reviewed August 2016 – March 2018). https://portstephenskoalas.com.au/newsletters/	Moderate	Records sourced from parties of varying reliability.
Saunders, D., Tzaros, C., Webb, M. and Thurstans, S. (2010) Background Document - Swift Parrot Recovery Plan. Department of Environment, Climate Change and Water, Queanbeyan, and Birds Australia. https://www.environment.gov.au/system/files/resources/c3e20a20-8122-4a9c-bd06-455ea7620380/files/swift-parrot-background-doc.pdf	Reliable	None.
Seebeck, J., Menkhorst, P., Wilson, B.A., and Lowe, K.M. (1996) Flora and Fauna Guarantee Action Statement No. 74, New Holland Mouse Pseudomys novaehollandiae. Department of Natural Resources and Environment, Victoria.	Reliable	None.
State of New South Wales and Office of Environment and Heritage (OEH) (2018) Threatened Species Biodiversity Profile Search.	Reliable	None.

Section 8 – Proposed alternatives

You are required to complete this section if you have any feasible alternatives to taking the proposed action (including not taking the action) that were considered but not proposed.

8.0 Provide a description of the feasible alternative?

Based on the previous concept approval of the Fern Bay Residential Village, including the location of the approved and constructed Seaside Boulevard, the intersection cannot be located elsewhere. The intersection is a requirement of the approval for Seaside Village, Fern Bay.

The intersection is a requirement of condition A2 and B5 of the major project approval (MP 06_0250):

A2 Staging

(11) Stage 14 comprises:

(c) Northern extension of Seaside Boulevard, including an intersection with Nelson Bay Road (northern intersection);

B5 Construction of connection to Nelson Bay Road (at Stage 14)

The northern extension of Seaside Boulevard and upgraded intersection with Nelson Bay Road (as identified on the 'Site and Staging Plan' (drawing 29850A - Sheet 1 of 22, prepared by Daly Smith Pty Ltd, dated 25/3/2010) must be constructed as part of Stage 14. The works (including the new intersection) must be designed and constructed at the cost of the proponent.

The following requirements of the Roads and Traffic Authority (RTA) must be met prior to issue of a construction certificate for these works:

- The proposed new vehicular access to/from Nelson Bay Road shall be designed/constructed with left turn deceleration and acceleration lanes in accordance with the RTA's Road Design Guide, including a provision for on road cyclists and a central median to prevent right turn in and out movements. Intersection lighting shall be provided to Austrlian Standards;

- Geometric road design shall be in accordance with the RTA Road Design Guide. Pavement design shall be in accordance with th AUSTROADS Pavement Design Guide;

- The proponent shall enter into a Works Authorisation Deed with the RTA for any works within the Nelson Bay Road reservation. In this regard, the developer is required to submit detailed design plans and all relevant additional information, as may be required by the RTA's Works

Authorisation Deed documentation, for each specific change to the State road network for the RTA's assessment and final decision concerning the work;

- The applicant shall obtain a Road Occupancy Licence from the RTA; and,

- Section 138 concurrence under the Roads Act 1993 shall be obtained from the RTA.

The intersection listed under the Statement of Commitments of the major project approval (MP 06_0250), Item Number 31 (Table 4.1 Revised Statement of Commitments):

Item: *Traffic Management and Access*

Commitment: *The design and upgrade of the northern intersection with Nelson Bay Road will be undertaken at the developer's expense and will be constructed in accordance with RTA requirements and approvals.*

Responsibility: *Aspen Group Pty Ltd*

Timing: *During Stage 14*

8.1 Select the relevant alternatives related to your proposed action.

8.27 Do you have another alternative?

No

Section 9 – Contacts, signatures and declarations

Where applicable, you must provide the contact details of each of the following entities: Person Proposing the Action; Proposed Designated Proponent and; Person Preparing the Referral. You will also be required to provide signed declarations from each of the identified entities.

9.0 Is the person proposing to take the action an Organisation or an Individual?

Organisation

9.2 Organisation

9.2.1 Job Title

Development Manager

9.2.2 First Name

Michael

9.2.3 Last Name

Radovnikovic

9.2.4 E-mail

michael.radovnikovic@rawson.com.au

9.2.5 Postal Address

1 Homebush Bay Drive

Building F, level 2, Suite 1
Rhodes NSW 2138
Australia

9.2.6 ABN/ACN

ABN

18168462048 - FERN BAY NO 1 PTY LIMITED

9.2.7 Organisation Telephone

0431053878

9.2.8 Organisation E-mail

michael.radovnikovic@rawson.com.au

9.2.9 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

Not applicable

Small Business Declaration

I have read the Department of the Environment and Energy's guidance in the online form concerning the definition of a small a business entity and confirm that I qualify for a small business exemption.

Signature:…… Date: ……

9.2.9.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations

No

9.2.9.3 Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made

Person proposing the action - Declaration

I, MICHAEL RADOVNIKOVIC, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature:…… Date: 28 MARCH 2019

I, _____, the person proposing the action, consent to the designation of _____ as the proponent of the purposes of the action describe in this EPBC Act Referral.

Signature:…… Date: ……

9.3 Is the Proposed Designated Proponent an Organisation or Individual?

Organisation

9.5 Organisation

9.5.1 Job Title

Development Manager - Communities

9.5.2 First Name

Michael

9.5.3 Last Name

Radovnikovic

9.5.4 E-mail

michael.radovnikovic@rawson.com.au

9.5.5 Postal Address

1 Homebush Bay Drive

Building F, level 2, Suite 1
Rhodes NSW 2138
Australia

9.5.6 ABN/ACN

ABN

18168462048 - FERN BAY NO 1 PTY LIMITED

9.5.7 Organisation Telephone

0431053878

9.5.8 Organisation E-mail

michael.radovnikovic@rawson.com.au

Proposed designated proponent - Declaration

I, MICHAEL RADOVNIKOVIC, the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature:…… Date: 28 MARCH 2019

9.6 Is the Referring Party an Organisation or Individual?

Organisation

9.8 Organisation

9.8.1 Job Title

Director

9.8.2 First Name

Matt

9.8.3 Last Name

Doherty

9.8.4 E-mail

matt.doherty@mjdenvironmental.com.au

9.8.5 Postal Address

PO Box 360
Waratah NSW 2298
Australia

9.8.6 ABN/ACN

ABN

81952144038 - The Trustee for Doherty Family Trust

9.8.7 Organisation Telephone

0416208684

9.8.8 Organisation E-mail

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Referring Party - Declaration

I, _____MATT DOHERTY_____, I declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature:…… Date: ……28 MARCH 2019……..

Appendix A - Attachments

The following attachments have been supplied with this EPBC Act Referral:

1. 1 Project Approval - 28 June 2010.pdf
2. 1682_001 Mod 8.pdf
3. 3702_001 Mod 5.pdf
4. 17025 Ecology Assessment Fern Bay RMS intersection V2.pdf
5. 17025 Figure 1 A-A3 25-6-2018.jpg
6. 17025 Figure 4 A-A3.JPG
7. 17025 Figure 7 A-A3 25-6-2018.JPG
8. Approved plans reduced.pdf
9. Fern Bay Mod 1.pdf
10. Fern Bay Mod 6 Project Approval.pdf
11. Fern Bay Mod 7 Project Approval.pdf
12. Instrument of Modification[1] Mod 3.pdf
13. MJD_EPBC_Data_20190322.zip
14. MP 06_0250 MOD 9 Modification Instrument.pdf
15. Modifying Instrument_06_0250 MOD 10.pdf
16. NE160043_FERN BAY_DD_RevC_2019-03-08 reduced-1-28.pdf
17. NE160043_FERN BAY_DD_RevC_2019-03-08 reduced-29-67.pdf
18. Withdrawl of Modification Application 2.pdf